

6-6

Standardized Test Prep

Function Operations

Multiple Choice

For Exercises 1–5, choose the correct letter.

- Let $f(x) = -2x + 5$ and $g(x) = x^3$. What is $(g - f)(x)$?

(A) $x^3 - 2x + 5$ (C) $-x^3 - 2x + 5$
 (B) $x^3 + 2x - 5$ (D) $-x^3 + 2x - 5$
- Let $f(x) = 3x$ and $g(x) = x^2 + 1$. What is $(f \cdot g)(x)$?

(F) $9x^2 + 3x$ (G) $9x^2 + 1$ (H) $3x^3 + 3x$ (I) $3x^3 + 1$
- Let $f(x) = x^2 - 2x - 15$ and $g(x) = x + 3$. What is the domain of $\frac{f}{g}(x)$?

(A) all real numbers (C) $x \neq -3$
 (B) $x \neq 5, -3$ (D) $x > 0$
- Let $f(x) = \sqrt{x} + 1$ and $g(x) = 2x + 1$. What is $(g \circ f)(x)$?

(F) $2\sqrt{x} + 3$ (H) $\sqrt{2x + 1} + 1$
 (G) $2x\sqrt{x} + 2x + \sqrt{x} + 1$ (I) $2x + \sqrt{x} + 2$
- Let $f(x) = \frac{1}{x}$ and $g(x) = x^2 - 2$. What is $(f \circ g)(-3)$?

(A) $\frac{17}{9}$ (B) $\frac{1}{7}$ (C) $-\frac{17}{9}$ (D) $-\frac{7}{3}$

Short Response

- Suppose the function $f(x) = 0.035x$ represents the number of U.S. dollars equivalent to x Russian rubles and the function $g(x) = 90x$ represents the number of Japanese yen equivalent to x U.S. dollars. Write a composite function that represents the number of Japanese yen equivalent to x Russian rubles. Show your work.